

**REMARKS**

Claim 13 is currently pending in this application. By this response to the non-final Office Action mailed on September 17, 2008, claim 13 is amended to incorporate the limitations previously recited in claim 14, claims 1-12 and 14-17 are canceled without prejudice, and the specification is amended. Support for the amendments is found in the specification and claims as originally filed. No new matter has been introduced. Favorable reconsideration of the application in light of the foregoing amendments and following comments is respectfully solicited.

In section 3 of the Office Action, the disclosure was objected to. Applicant respectfully submits that the amendment to the specification, presented on page 2 of this Amendment, overcomes the objection. Accordingly, Applicant respectfully requests withdrawal of the objection.

In section 5 of the Office Action, claims 1, 2, 5, 6, and 17 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent App. Pub. No. 2002/0168593 (Lin). In section 8 of the Office Action, claim 15 was rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,673,103 (Inoue). In section 12 of the Office Action, claims 4, 8, and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin. In section 18 of the Office Action, claims 3 and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin in view of U.S. Patent No. 6,492,078 (Ohnuma). In section 23 of the Office Action, claim 10 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin in view of U.S. Patent App. Pub. No. 2002/0136967 (Sasaki '967). In section 28 of the Office Action, claims 11 and 12 were

rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin in view of U.S. Patent No. 5,242,770 (Chen). In section 16 of the Office Action, claim 16 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin in view of U.S. Patent No. 4,864,123 (Mizutani). As claims 1-12 and 15-17 are canceled without prejudice, the above rejections are moot.

In section 33 of the Office Action, claims 13 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin in view of U.S. Patent No. 6,685,848 (Sasaki). Applicants note, in view of the citations in section 36 of the Office Action, that the Office Action appears to incorrectly cite Sasaki '967, instead of the above patent. Applicant respectfully traverses.

Amended claim 13 recites, *inter alia*,

to form said hole pattern said mask pattern has an opening larger in width in a first direction parallel to said linearly polarized light's direction of polarization than a second direction orthogonal to said first direction, wherein said mask pattern has a halftone region.

Embodiments of the above limitations introduce a dimensional limitation to prevent an abnormal transfer attributed to a sub peak, which has conventionally been an obstacle to halftone exposure with improved resolution.

Lin is directed to an optical proximity correction technique which is performed based on the orientation of a pattern, which is applied to X-directional or Y-directional line patterns rather than a hole pattern, as acknowledged in section 35 of the Office Action. The recited dimensional correction is opposite to that disclosed by Lin. As described at page 20, lines 18-19 of the present application, for a hole pattern, a different dimensional correction than that used for forming a line pattern is employed.

Seeking to cure the acknowledged failure of Lin to disclose a method of fabricating a semiconductor device including a hole pattern (Office Action, section 35), the Office Action relies upon Sasaki (section 36). However, Sasaki merely discloses a dry-etching method, using a

mixed etching gas comprising an oxygen-containing halogen gas to which a hydrogen-containing gas is added, for a metal film photomask that decreases a dimensional difference that was observed between photomask features between dense portions (with a large removed area) and coarse portions (with a small removed area) when using conventional dry etching techniques. See Sasaki, col. 15, lines 39-42; Table 3; and col. 2, line 66 to col. 3, line 11.

The Office Action fails to explain how combining the Sasaki photomask etching method with Lin would have rendered obvious the recited mask pattern characteristics corresponding to the formation of a hole pattern. The rationale proposed by the Office Action, that it the combination would “achieve very small dimensional difference between the coarse and dense portions” merely goes to the accuracy achieved in etching a target pattern in a photomask. Even if Sasaki generally discloses a chromium oxide half-tone phase-shift photomask with a hole system pattern, there is no suggestion that such photomask hole patterns on a half-tone mask would have been combined with the optical proximity correction technique disclosed by Lin, which relates to directional photoresist line patterns (*i.e.*, X-directional or Y-directional patterns (*see* paragraphs [0025]-[0028])), and discloses that “optical proximity correction models are used . . . according to . . . the orientations of each pattern” (paragraph [0016]).

Thus, Applicant respectfully submits that it would not have been obvious at the time of invention to have combined Lin with Sasaki so as to produce the claimed “method of fabricating a semiconductor device including a hole pattern.” Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 13.

**Application No.: 10/551,553**

In view of the above remarks, Applicant respectfully submits that the application is in condition for allowance, and respectfully requests the Examiner's favorable reconsideration as to allowance. The Examiner is invited to contact the Applicant's representative listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



Eric M. Shelton

Registration No. 57,630

600 13<sup>th</sup> Street, N.W.  
Washington, DC 20005-3096  
Phone: 202.756.8000 MAM/EMS:cac  
Facsimile: 202.756.8087  
**Date: December 17, 2008**

**Please recognize our Customer No. 20277  
as our correspondence address.**